

CLAIMS

1. An FePt magnetic thin film characterized by having an atomic composition represented by the following Formula:



$$(19 < x < 52).$$

2. The FePt magnetic thin film according to Claim 1, characterized by having a thickness of less than 100 nm and an $L1_0$ structure.

3. The FePt magnetic thin film according to Claim 1 or 2, characterized by being formed on a single crystalline substrate or on an oxide undercoat layer formed on the surface thereof.

4. The FePt magnetic thin film according to Claim 3, characterized by being formed via a thin layer of one or more of transition and noble metals formed as an undercoat layer.

5. The FePt magnetic thin film according to Claim 4, characterized in that the thin layer is a single layer or multiple layers.

6. The FePt magnetic thin film according to Claim 5, characterized in that the thin layer has a layer of one or more of Fe, Ag, Ni, Co and Cr and a layer of one or more of Au, Pt, and Cu.

7. A method of producing the FePt magnetic thin film according to any one of Claims 1 to 6, characterized by forming the FePt magnetic thin film by sputtering on a single crystalline substrate, a substrate having an oxide undercoat layer formed thereon, or a substrate having a thin layer of one or more of transition and noble metals as undercoat layer at a temperature in the range of 240°C to 500°C.

8. The method of producing the FePt magnetic thin film according to Claim 7, characterized in that the FePt magnetic thin film is formed by sputtering at a temperature of 300°C or lower.